Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

rve
43
63

FOREIGN AGRICULTURE REPORT

U. S. DEPARTMENT OF AGRICULTURE
FOREIGN AGRICULTURAL SERVICE
WASHINGTON, D.C.

RECENT CHANGES IN THE CITRUS INDUSTRY IN SPAIN

by

J. HENRY BURKE
Marketing Specialist

LIBRARY
CURRENT SERIAL
MAR 25 1954
U. S. DEPARTMENT OF AGRICULTURE

RECENT CHANGES IN THE CITRUS INDUSTRY OF SPAIN

FOREWORD

The citrus industry of Spain competes strongly with United States producers of winter citrus and citrus juices in the Western European markets. Of all the Mediterranean countries, Spain grows the largest quantity of fruit and also has the best organized industry, capable of excellent packing and merchandising practices. It produces some of the world's finest oranges.

This circular presents changes that have taken place in Spain's citrus industry in the last four years, thus bringing up to date (November 1953) the basic Study of the Citrus Industry of Spain, 1950, published by the Office of Foreign Agricultural Relations in 1950 as Foreign Agricultural Report No. 56.

Donald M. Rubel, Director
Fruit and Vegetable Division

Summary and Conclusions

Spain has the most competitive citrus industry in the Mediterranean and is steadily increasing production of these fruits. Today, thanks to new varieties and improved packing methods, it has virtually a new orange industry, and its better quality fruit is reaching markets in better condition. Growing demand for citrus in Europe has made possible a rapid expansion of exports at price levels favorable to growers. Spain's best citrus customers are Germany, France, and the United Kingdom, in that order.

In all evaluating of future production, the frost hazard is an important factor. Since 1946 there has been no frost or freeze damage in Spain; it is the greatest interval in the last 32 years without such damage.

The country's sweet-orange industry is rapidly changing. Different commercial varieties are being introduced. New plantings are being made, primarily of Navels, Cadeneras, Salustianas, Sanguinellis, and Valencia Late; about 15 percent of the present acreage is in plantings less than 5 years old. Orchards are in better condition, having recovered substantially from the severe freeze in 1946. Cultural practices have generally changed little, but they have long been excellent; the vigorous, heavy-bearing trees are evidence that the expert hand culture in Spain is one of the best in the world.

These circumstances indicate that the annual orange crop in Spain could reach as much as 50 million boxes by 1955 and 60 million boxes by 1960. This potential, however, is unlikely to be realized: unfavorable weather or disease probably will reduce production below this level. Considering all factors, we may reasonably expect Spain to produce, on the average, about 35 million boxes a year for the next 5 years, with no more than 50 million boxes in any one year. The excellent quality of Spanish oranges and the country's improved packing methods will assure Spain a highly competitive place in all Western European markets, with its fancy-grade fruit selling at premiums over citrus from other areas.

Production of tangerines is expanding and will probably continue to do so until arrested by a frost; it could reach $3\frac{1}{2}$ million boxes per year by 1955. For the next 5 years, however, average production will probably be about 2 million boxes per year, with no year likely to exceed $3\frac{1}{2}$ million.

Lemon production, too, is expected to increase. If no frost checks the increase in this fruit, the annual crop could reach $2\frac{1}{2}$ million boxes by 1955 and $3\frac{1}{2}$ million by 1960. A sustained increase is a greater certainty for lemons than for oranges and tangerines because most lemons are produced in the Murcia district, where the frost hazard is less great; and the annual production of lemons in Spain, therefore, will probably average $2\frac{1}{2}$ million boxes per year in the next 5 years and reach 3 million boxes by 1960. The poor cultural practices in many small groves will result in large quantities

of low-grade fruit; and this fact, together with the unpopularly large size of summer Verna lemons, will make the increased crops less competitive than they might otherwise be. The increased supply of lemons will not result in greatly increased supplies of lemon oil, owing to the practice of letting the lemons stay on the trees until they are yellow and past the best oil-producing stage.

Spain's processing industry is expanding, with emphasis on concentrated products. In the 1952-53 season probably 13 to 14 million boxes of citrus were consumed in the domestic market, of which about 1¼ million boxes were probably processed. Even so, considerable plant capacity is still unused.

The expanding processing industry will enable Spain to supply increased quantities of orange juice concentrate to the United Kingdom for the Child Health Program; but the most competitive field in processed products will still be concentrated juices packed in casks and preserved with sulfur dioxide, for use in the manufacture of soft drinks. Juices for nonindustrial use, packaged for the consumer, are not likely to be sold in any volume except in European markets, where foreign-exchange restrictions limit imports to nondollar areas.

Spanish citrus growers received good returns for their fruit in 1953; orange growers received gross returns of about 15,000 pesetas ($491) per acre; lemon growers, 4 to 5 pesetas per kilo (6 to 7 cents per pound) for fruit on the tree. Spain can reduce costs of production by 20 percent or increase returns in pesetas by 20 percent any time it is decided to apply the free exchange rate to citrus exports.

Production

In the last 5 years Spain has shown a remarkable recovery in citrus production. Production of oranges was 15 million boxes larger in 1952 than it had been in 1948 and about 16 million boxes larger than the average for 1935-39 (table 1). Both the improved condition of Spanish orchards and the new plantings being made indicate that high levels of orange production are possible in the next few years. If favorable weather conditions prevail, production of Spanish oranges could reach 50 million boxes per year by 1955 and 60 million boxes by 1960.

Production of tangerines also has increased; in 1952 it was more than double what it had been in 1948. New plantings indicate that production may increase even more; by 1955 it may have reached 3½ million boxes per year.

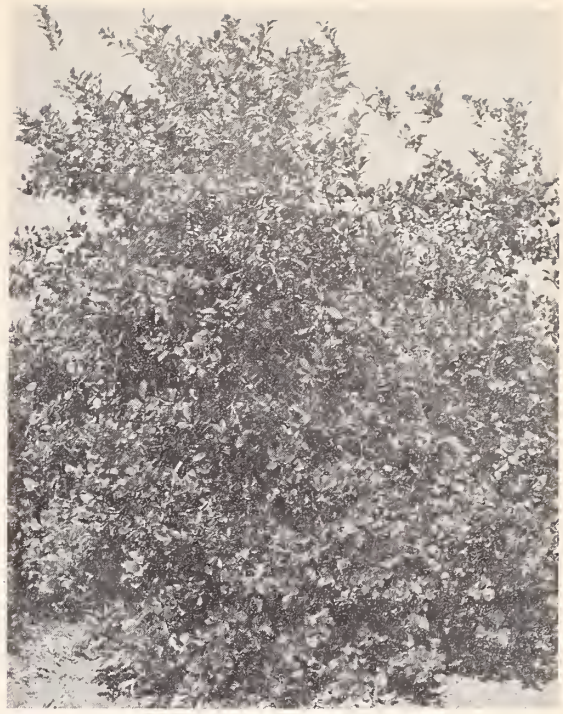
Table 1.--Production of oranges, tangerines, and lemons in Spain, average 1935-39 and 1945-49, annual 1948-53

Period	Oranges 1/	Tangerines	Lemons
	1,000 boxes	1,000 boxes	1,000 boxes
Average:			
1935-39.....	24,167	2/	1,445
1945-49.....	22,605	1,211	1,108
Annual:			
1948.....	25,168	1,109	812
1949.....	20,662	923	870
1950.....	29,009	1,550	1,378
1951.....	33,491	1,779	1,740
1952.....	40,464	2,519	1,508
1953 3/.....	47,241	3,149	2,030

1/ Sweet and bitter oranges.
2/ Not separately reported until 1944; included in oranges.
3/ As estimated by the author in November 1953.

Source: Compiled from official sources.

Lemon production has followed the trend of other citrus production. Although in 1952 it was only 700,000 boxes more than in 1948, the increase is a substantial one for lemons. In 1950, lemon trees in the vicinity in Murcia were being removed, for at that time lemons were not relatively profitable. But now the prospects for Spanish lemons have changed: the continued restriction of lemon production in Italy and the growing demand from Eastern and Western Europe have resulted in high prices. Better care of some orchards and new plantings indicate that in the future Spain will be a more important source of lemon supplies for Western Europe than it has been in the past. Production may reach 2½ million boxes by 1955 and 3½ million by 1960.



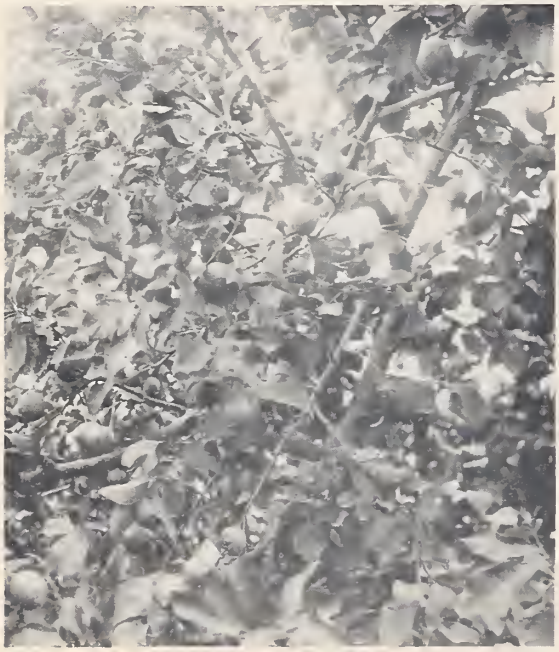
Well-grown oranges and lemons near Murcia.

Citrus plantings in the Segura Valley stretch out toward the city of Murcia.

Rows of closely planted lemon trees in an extensive grove near Murcia.

Young peach trees grow in the Segura River valley, against the background of a small lemon grove. Such interplanting is typical of the district.

Lemon plantings in the highlands near Murcia.



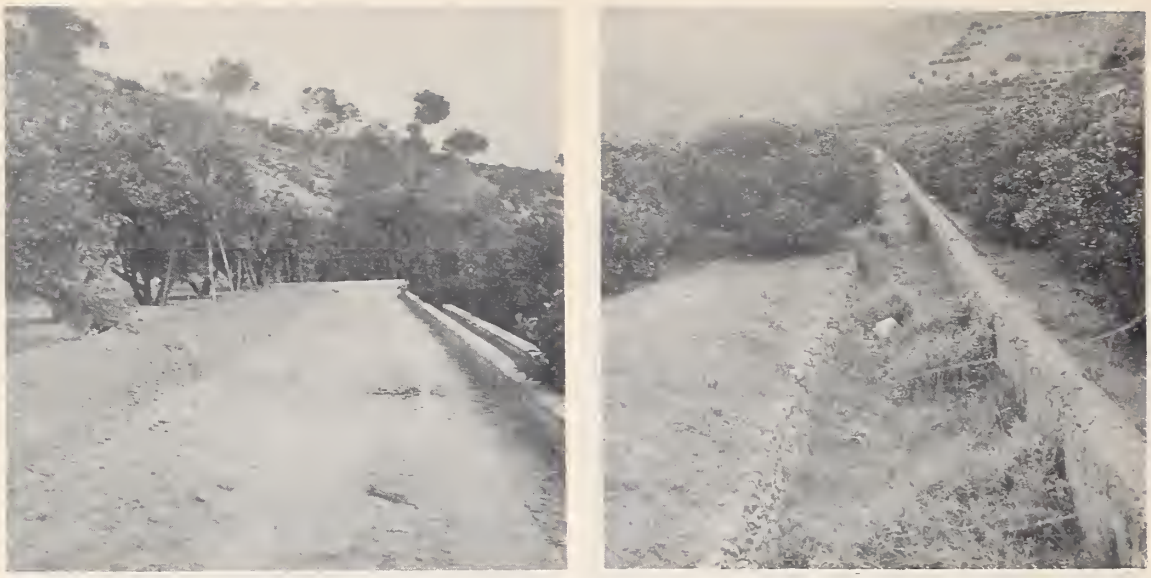
A vigorous lemon tree, Murcia.

Water being pumped into a reservoir near Murcia to irrigate newly planted lemons in the highlands.

The Segura River at Murcia. This river furnishes gravity water to the valley plantings.

Closely planted orange grove in the Marina, near Gandia.

A heavy crop of oranges near Castellon, October 1953.



Typical high citrus plantings on light soil in the Ribera, near Carcagente.

Valley citrus plantings, with Sagunto in the background.

Exports

Spain's foreign trade in citrus has expanded to match its growing citrus production. Exports in the 1952-53 season were nearly 20 million boxes larger than they had been in 1948-49 (table 2). This increase is based on data that include all Spanish citrus--sweet and bitter oranges, tangerines, lemons, and grapefruit--but of course most of the trade is in sweet oranges. Exports of lemons probably are less than 1 million boxes a year, and exports of bitter oranges, about 300,000 boxes per year.

Table 2.--Exports of citrus fruit 1/ from Spain, by country of destination, 1948-49 to 1952-53

Country	1948-49	1949-50	1950-51	1951-52	1952-53
	Boxes	Boxes	Boxes	Boxes	Boxes
United Kingdom.	2,708,509	2,595,570	5,565,324	4,756,268	5,584,725
France.....	3,924,220	4,799,542	6,419,072	8,047,956	7,399,457
Netherlands....	837,843	1,193,350	1,646,113	1,731,934	1,683,464
Belgium.....	1,141,353	1,264,527	1,847,109	2,096,921	1,944,048
Norway.....	183,234	170,573	251,324	395,883	1,052,760
Switzerland....	331,540	228,963	574,613	1,010,998	653,507
Sweden.....	786,412	915,854	1,090,395	1,440,360	1,352,617
Denmark.....	260,647	471,282	430,999	507,530	541,072
Ireland.....	29,258	8,787	-	-	70,516
Argentina.....	79,870	118,922	31,243	-	-
Finland.....	136,307	-	16,755	201,060	172,242
Germany.....	551,150	1,107,245	1,988,014	3,881,514	10,374,471
Austria.....	-	7,180	22,676	21,510	81,665
Canada.....	7,118	14,928	12,283	30,423	30,455
Iceland.....	-	-	50,359	45,100	74,610
Luxemburg.....	6,299	14,550	-	17,731	19,873
Saar.....	-	-	-	12,976	-
Singapore.....	-	-	-	-	17,227
Other.....	-	-	-	11,371	10,172
Total	10,983,760	12,911,273	19,946,279	24,209,535	31,062,881

1/ Includes all Spanish citrus - sweet and bitter oranges, tangerines, lemons, and grapefruit - but consists chiefly of sweet oranges.

Source: Consular reports.

In the 5 years from 1948-49 to 1952-53, Spain's exports to England have nearly doubled. The largest increase, however, has been in exports to the Continent: those to France have about doubled, as have those to Sweden, Switzerland, and Denmark; and—most dramatic increases of all—those to Norway are 5 times larger and those to Germany 20 times larger.

Germany is Spain's most important customer for citrus, followed by France and the United Kingdom. The increasing economic development in Germany indicates that in the future even higher levels of exports to that country are possible. Eventually Germany may be able to take 15 to 18 million boxes per year from Spain.

The improved quality of Spanish oranges may be an important factor in Europe's increase in imports. But there are other factors, too. Packing methods in Spain are improved, thus cutting down the losses from decay, which before the war were at times very large. And the quality of exports is better regulated; the author is not likely to have again an experience he had in 1927—of purchasing, in Europe, dry frozed Spanish oranges.

Domestic Consumption

As indicated by data in tables 1 and 2, domestic consumption of citrus in 1952 including the fruit used in processing, was probably between 13 million and 14 million boxes (the production of oranges, tangerines, and lemons in 1952 less the total citrus exports during 1952-53). This amount probably consisted of nearly ½ million boxes of lemons and 12 million boxes of sweet oranges consumed as fresh fruit; it is doubtful that much more than 1¼ million boxes were used for processing.

With improving transportation, Spanish domestic consumption will probably increase. Cheaper tinplate may make the domestic sale of canned citrus juices possible and thus further increase consumption.

Economic Factors

Economic conditions have improved in Spain in the last four years. The railroad rolling stock and roadbeds are in much better condition, new buildings are going up, and there is a noticeable increase in the number of trucks on the road.

Citrus growers have been making good returns. Orange districts are prosperous. Considering that the average Spanish grove has 150 trees to the acre and assuming that each tree produces about 100 kilos (220 pounds), production per acre is about 15,000 kilos (472 boxes). At the 1953 average price of 1½ pesetas per kilo ($1.56 per equivalent 70-pound box), an orange grove returns 22,500 pesetas ($736) per acre. Lemon groves have received even higher returns, as much as 4 and 5 pesetas per kilo ($4.51 to $5.64 per equivalent 76-pound box) on the tree.

Cost of Production

The costs of production have not increased greatly in the past four years. For oranges they may be as low as 5,000 pesetas ($164) per acre, and the most expensively operated grove will not cost more than 10,000 pesetas ($327) per acre; in most areas the average is probably about 7,500 pesetas ($245). This computation, however, uses conservative estimates: some plantings have more than 150 trees per acre, most groves produce more than 100 kilos per tree, and some growers have received 2 pesetas per kilo ($2.08 per box) for Navels, Cadeneras, Sanguinellis, and Vernas.

Wages of farm laborers are about 132 pesetas ($4.32) per week, or 25 to 30 pesetas ($0.82 to $0.98) per day, plus 6-percent social-insurance tax for steady employment. Laborers hired by the day for occasional work received 40 to 50 pesetas ($1.31 to $1.64) per day in 1953.

Some costs have gone down. Sulfate of ammonia, for example, which cost 4 to 5 pesetas a kilo ($119 to $148 per ton) in 1949, cost only 2.60 pesetas per kilo ($77 per ton) in 1953. In addition to being cheaper, this important fertilizer was also in more abundant supply.

Some costs have increased greatly. One-year-old budded nursery trees, which cost 2½ to 2-3/4 pesetas (8 to 9 cents) each in 1949, cost 15 to 20 pesetas (49 to 65 cents) in 1953. This increase is evidence of the interest in new plantings. Cost of nursery trees, however, is a capital rather than an operating expense.

Picking and packing costs have increased steadily during the past 20 years but are still reasonable considering the excellent packs being put up; in Spain the rate of increase has not been so drastic as in competing countries. In 1953 the average cost of picking and packing a "California" box of oranges in Spain, including the cost of transport from field to packinghouse and from packinghouse to port, was 32 to 38 pesetas ($1.05 to $1.24). During the years 1934-39 and 1947-52, the same work, according to financial records of a Spanish packinghouse, cost as follows:

Year	Cost (Pesetas)	Year	Cost (Pesetas)
1934-35....	4.00	1947-48....	19.00
1935-36....	5.70	1948-49....	19.00
1936-37....	7.35	1949-50....	27.00
1937-38....	9.70	1950-51....	32.00
1938-39....	9.84	1951-52....	34.60

The Citrus Export Exchange Rate

Spain still has a multiple exchange rate with a different rate of exchange for each type of commodity imported or exported. The profitableness of exports depends on what is the effective exchange rate.

In exports these exchange rates are quoted in terms of "clearing dollars." Thus the exchange rate is the same in each country to which exports are made and are computed in terms of the relationship between the non-Spanish currencies and the dollar. In 1953 Spanish citrus exporters received half of their returns at the official rate of exchange (21.90 pesetas to the dollar on October 1) and half at the free rate of exchange (39 to 40 pesetas to the dollar), making the average, or effective, rate of exchange about 30.575 pesetas to the dollar. This was the rate exporters were using in October 1953 as a guide to their operations and is the one that has been used as a conversion factor in this study. Values have been stated in both pesetas and dollars, for the exchange rate may change at any time, making much of this publication valueless as a reference unless the local currency is shown.

The advantage of the free exchange rate is obvious. Cost of a 30-kilo box of graded lemons at channel ports may be 204.80 pesetas—150 pesetas for lemons on the tree, plus 40 pesetas for packing and transport, plus 14.80 pesetas (3 shillings and 6 pence, at 4.23 pesetas to the shilling) for freight from Spanish ports to channel ports. If this box is sold for 6.69 clearing dollars at the effective exchange rate, the price received virtually equals the 204.80-peseta costs. But if it is sold at the free exchange rate, the same price will bring a return of 267.60 pesetas—an advantage of nearly 70 pesetas.

In actual practice, through various operations under the multiple exchange system, the exporter may receive returns higher than the average rate of 30.575 pesetas. Even with some additional advantages, however, the exporter is probably in a less favorable position that he would be if the free rate of exchange were applied to citrus exports.

All in all, the Spanish citrus industry is in an excellent position, with highly competitive costs for culture, wages, and packing. Of all producing areas on the Mediterranean, Spain is certainly in the strongest competitive position for the export of fresh citrus.

The Frost Hazard

The frost hazard is greater in Spain than in any of the other major Mediterranean producing areas. Danger of frost is greatest in the La Plana region and is much less in the higher Ribera area and the southern lemon-producing area, near Murcia. In the Valencia area, particularly, the frost hazard is an important factor in estimates of future orange and tangerine production.

In the last 32 years Spain has had 3 tree-damaging freezes: In 1926-27, 1934-35, and 1945-46, all occurring between December 24 and January 20. The greatest interval between freezes was in the 10 years from 1934-35 to 1945-46. In addition to these freezes, there have been 4 frosts that reduced the citrus crop: in 1925-26, 1930-31, 1940-41, and 1942-43. Thus the greatest interval between a frost or a freeze has been in recent years, from 1946 through 1953; the next longest period was the 5 years from 1935-36 to 1940-41 1/. The current frost-free period has been a favorable time for the Spanish citrus industry to recover from the lack of care during the war and the severe freeze of January 1946.

Citrus Districts

As a further appraisal of the changes that have taken place in Spain's citrus industry, it is in order to comment on changes in each of the more important producing areas.

Murcia

The Murcia citrus district, in the valley of the Segura River, is the most important lemon-producing area of Spain and the second most important on the Mediterranean. Nearly all of the groves are small; many of them are mixed plantings, with peaches and other fruits. They are irrigated mostly with gravity water on the valley floor. These groves are generally poorly kept, and many trees were observed to be unpruned and rather heavily infested with scale. Such lax cultural practices, which result in a high percentage of low-grade fruit, keep Spain from being as competitive as its summer lemon season indicates that it could be. In contrast to these small groves there are a few large lemon orchards, usually situated in areas on higher ground and irrigated with pumped water; these are well cared for and produce high-quality export lemons.

Lemon orchards of both types are being expanded, and production will increase greatly in the future. In addition to new lemon plantings, orange orchards also are being set out on the valley floor. The extent of these plantings indicates that, in addition to being the major lemon-producing area, Murcia will become important as a source of export oranges.

The Murcia district, being in the southern part of Spain's citrus area, much farther south than Valencia, has a milder climate and lower frost hazard. Growers report that even at the time of the 1946 freeze there was no extensive tree damage in the Murcia area.

Because of the fact that the Verna lemons, the most important in the district, are held on the tree until they are mature and yellow, little lemon oil is produced in the district.

1/ For a complete report of frost damage since 1925, see Study of the Citrus Industry of Spain 1950, For. Agr. Rpt. No. 26, November 1950, p. 23.

Large, well-equipped packing houses have been built within the last few years, greatly increasing Murcia's potential to supply well-packed citrus for export.

The Marina

The Marina citrus area is near Gandia. Being close to the sea, it raises fruit of fine quality; it also shows evidence of many new plantings, entirely of orange varieties. Most of the new plantings are on high ground suitable to citrus culture; but some of the new plantings were observed on low ground, near the area where rice is cultivated, and there seems to be a danger that such orchards may not long survive, owing to excessive moisture. Generally the orchards are well-kept and the trees vigorous.

The Ribera

The Ribera, a high citrus area near Carcagente, is the finest sweet-orange area in Spain. Because its groves are at a high elevation, it suffered little tree damage during the 1946 freeze. It is this area which, together with the Marina, has been a major factor in sustaining Spain's exports since 1946. Trees in this area are large compared to those in the Marina or the La Plana regions. Some new plantings are being made although most of the available lands suitable to citrus have already been utilized for that purpose.

Sagunto and Valencia

The areas of Sagunto and Valencia were severely damaged in the 1946 freeze, but the surviving trees have now recovered to the extent that they are again producing normal crops. New plantings are being made, there being ample irrigated land available, which has been planted to other fruit crops and cotton. The extent to which citrus will supplant these crops will in the long run depend on the profitableness of citrus compared to that of other crops.

Castellon

The Castellon area, an important source of oranges and tangerines, was heavily damaged by the 1946 freeze but has now recovered to the extent that some groves in the 1953-54 season will produce 30 percent more fruit than in the previous year. The frost-damaged trees are being kept in good condition by the removal of dead trunk wood, which is expertly accomplished in Spain. When dead wood is removed, it was noted, the cuts are made in such a manner that water will drain out of the exposed area and further dieback will be prevented. Some growers are finding that production has been increased by less drastic pruning.

On clementines, a yearly girdling of the fruit limbs about 1 inch diameter has been found to result in a good commercial crop.

New irrigation projects are under way in the vicinity of Castellon, which may increase the irrigated area available for citrus. Even though the trees have largely recovered from frost damage in this area, there is still room for tree growth to increase the bearing surface.

Varieties 1/

Commercial orange varieties are changing rapidly in Spain, evidently in the direction of improved fruit quality. (Table 3.)

Before the war the Spanish citrus industry was based primarily on the Comuna seeded orange, which, though producing some fruit of good quality, produced much that was sour and poor. Now other varieties, such as Navel, Cadenera, Doble Fina, and Verna, have become Spain's most important export oranges.

In the past four years the Washington Navel has become one of the country's major orange varieties, surpassing the Cadenera in importance. But this orange, though a favorite, tends to grow too large under the favorable Spanish culture to be always commercially acceptable. In some groves as much as one-third of the fruit is too large to export. The Thompson Navel has been tried, but the quality of its fruit is reported to be inferior to that of the Washington variety.

Table 3.— Orange varieties of commercial importance in Spain, 1953

Variety	Season	Description
Of major importance:		
Comuna	Early	Group of seeded nonbloods.
Cadenera	do.	Seeded nonblood of excellent quality.
Navel (Washington)	do.	Seeded nonblood.
Vicieda	do.	Seeded round nonblood.
Entra Fina	Midseason	Round blood.
Doble Fina	do.	The "Blood Oval," an excellent orange.
Verna (Berna)	Late	Excellent late nonblood.
Of growing importance:		
Victoria	Early	Early nonblood, probably the Hamlin.
Salustiana	do.	Early seedless nonblood, 3 weeks earlier than the Navel.
Sanguinelli	Midseason	Excellent Italian blood, with the pigment in the juice.
Valencia Late	Late	Most important late orange in world.

1/ For additional information on varieties, see Study of the Citrus Industry of Spain, 1950, For. Agr. Rpt. No. 56, November 1950.

New oranges such as the Salustiana, the Italian Sanguinelli, and the Valencia Late also are growing in importance. Although they are not as yet major varieties, they will undoubtedly become so. The Salustiana, an exceptionally early orange, is impressive. The fruit is the most perfectly formed the author has seen; and as early as October 15 the flesh was noted to be colored and nearly ripe enough to be good eating. All of the new varieties in Spain are known to commerce except the Salustiana; for indications of the relative importance of the principal varieties, see table 4.

There has been little change in the varieties of either lemons or tangerines. In Murcia, the principal lemon-producing district, the Verna (Berna) lemon is still first in importance and the Primofiore, second.

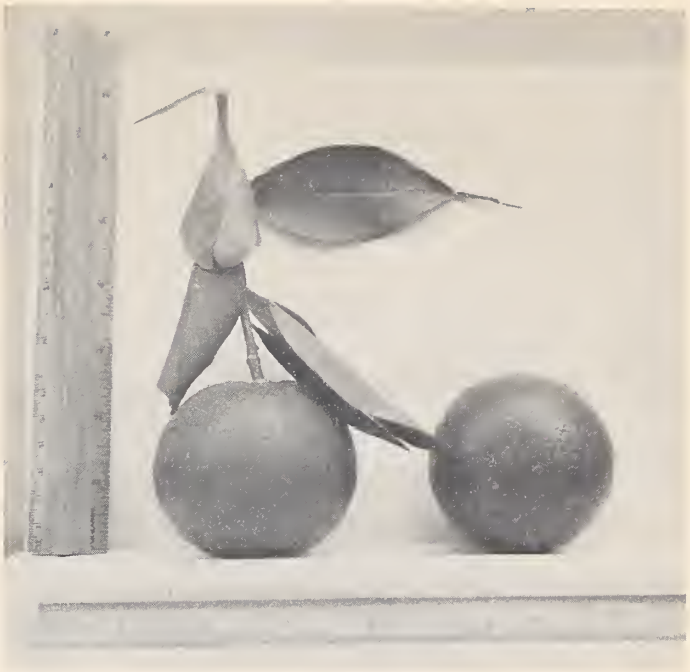
Table 4.--Comparative importance of various orange varieties in Spain as indicated by percent of total acreage in oranges (including tangerines), 1937 and 1945, and by percent of citrus exports from specified Provinces, 1953

Variety	Percent of orange acreage		Percent of citrus exports in 1953 from -		
	1937	1945	Valencia	Castellon	Alicante
Oranges:					
Salustiana.....	-	-	1/	1/	-
Vicieda.....	-	-	1/	1/	-
Victoria.....	-	-	1/	1/	-
Navel 2/.....	5.65	17.64	18.80	18.97	1/
Cadenera.....	(43.27	30.27	(5.40	1.38	-
Comuna.....	(		(21.90	25.90	24.13
Bloods 3/.....	33.83	34.58	42.20	40.68	60.13
Sanguinelli.....	-	-	1/	1/	-
Verna (Berna)...	5.94	5.94	5.60	2.22	14.46
Valencia Late...	-	.20	1/	1/	-
Other.....	1.59	1.65	1/	1/	1/
Tangerines.....	9.72	9.72	4.58	9.83	1/
Total, oranges and tangerines	100.00	100.00			
Grapefruit 4/.....	-	-	1/	1/	1/
Lemons 5/.....	-	-	1/	1/	1/
Total, citrus...	-	-	100.00	100.00	100.00

1/ Less than 1 percent.
2/ Mostly Washington Navel.
3/ Doble Fina (Blood Ovals) and Entre Fina, but mostly the former.
4/ Mostly Marsh Seedless (all white grapefruit).
5/ For lemons the three Provinces specified are scarcely representative: the major lemon-producing area is in the Province of Murcia.

Source: Percent of acreage, Luis Roson Perez, La Riqueza Citricola Espanola, p. 63; percent of exports, Sindicato Provincial de Frutos y Productos Horticolos, Zona de Levante, Valencia, Estado No. 27, July 1953.

The Salustiana, a new early seedless orange, grows on a strong stem.



As early as October 15, the date of these photographs, Salustiana fruit was mature enough to eat. Samples examined had 13 sections and no seed.

Brown area around the blossom end of these Spanish lemons is only an external discoloration.

Cutting away a thin section of the peel shows that the discoloration is scarcely skin-deep.

New Plantings

In every district visited, the author saw citrus being planted. In Murcia, both lemons and oranges are being planted; in other districts, chiefly oranges (table 5). Most of the new orchards noted were not more than 2 years old; production from these plantings may be expected by 1958 or thereabouts.

Emphasis in the new plantings is on seedless or nearly seedless varieties: the Navel, Cadenera, Salustiana, and Sanguinelli are all seedless or nearly so, and the Doble Fina also is nearly seedless. Besides, almost no Comunas are being planted; this seeded orange, long popular in Spain, apparently will be less important in the future.

As a result of the extensive planting of citrus, the Spanish Ministry of Agriculture issued a decree on June 26, 1953, to the effect that a permit must be obtained to plant citrus and that nursery operators could sell trees only to those holding such a permit. A permit must be obtained also to transport more than 10 nursery trees in one shipment. If these regulations can be enforced, they should be adequate to control citrus planting. Enforcement, however, is a difficult task, particularly because, after a tree has been planted a few years, it is not easy to determine exactly when it was planted and quite impossible to tell whether any specific tree was planted under a certain permit.

Table 5.--Estimated new plantings (less than 5 years old) in Spain, by specified districts, 1953

District and kind of citrus fruit	Reported predominating varieties	New Plantings
		Percent of acreage
Murcia:		
Lemons	Verna, Primofiore	25-30
Oranges	Navels, Cadenera, Entre Fina, Verna	15
Marina:		
Oranges	Salustiana, Sanguinelli	15
Ribera:		
Oranges	Salustiana, Sanguinelli	15
Sagunto		
Oranges	Navel, Sanguinelli, some Doble Fina, Salustiana, Cadenera	10
Valencia:		
Oranges	Navel, Sanguinelli, some Cadenera.	15
Castellon:		
Oranges	Navel, Cadenera, Valencia Late	25
Tangerines	Corriente	1/ 10

1/ Includes also a few new plantings of clementines.

Source: Reports from the trade, and estimates made by author on visits to the specified districts.

Without even making an effort to find them, the author saw large, well-kept nurseries everywhere in the citrus districts, and at least a million nursery trees. The very existence of these large nurseries, something new in Spain, seems to indicate that planting will continue for some time. Price of the trees in 1953 was 10 times that in 1949.

Cultural Practices

Cultural practices have changed little in Spain during recent years. Nearly all cultivation is still done by hand; horses are used on some of the large properties.

Pruning and general culture are excellent. Almost without exception the orange groves are well cared for; the trees have heavy, dark-green foliage and are in vigorous condition. The same cannot be said, however, for the small lemon groves in the Murcia plain. There, despite high lemon prices, trees are not well cared for: some are unpruned and covered with scale.

Pest control is still accomplished by fumigation. Years ago a fumigation that killed 95 percent of the scale would keep the pests under control for 2 or 3 years; now, however, a fumigation that kills 99 percent of the scale must be repeated every year. Apparently the pest-control problem is growing.

Little or nothing is being done to control the Mediterranean fruit fly, which in some seasons destroys half the fruit in some groves.

The disease psorosis, which is still prevalent and probably affects most varieties of citrus, is particularly evident in orchards of Washington Navels. No chemical treatment is being used and the nursery trees are not being raised from certified stock.

Gummosis continues to be a problem in most areas. To keep moisture away and reduce the possibility of infection, the roots are uncovered and basins are made around the trees.

No evidence was seen of mal secco or tristeza (quick decline).

Processing

The Spanish processing industry has changed greatly in the last four years: plants have been expanded and modernized, and new products are being made. All of the larger plants have mechanical juice extractors and equipment for canning juice and dehydrating peel for cattle feed.

Extensive new citrus plantings near Murcia in the valley of the Segura River.

New planting of oranges typical of the Marina.

New valley plantings of Sanguinelli oranges at Sagunto. A moorish type of irrigation ditch runs along the foreground.

New orange plantings near Sagunto.

Extensive nurseries typical of many in the Valencia area.

Well-grown orange trees near Valencia, which sold for 50 to 75 cents each in 1953.

New extensive orchard near Castellon.

Nearly all Spanish citrus groves are cultivated by hand.

Tools used for hand cultivation of citrus groves in Spain.

A basin has been formed around the base of a citrus tree to keep irrigation water from the trunk and thus prevent gommosis. The practice is typical of Spanish citrus culture.

Roots of an orange tree have been exposed to prevent root disease.

Trunk wood that has been killed by a freeze is expertly cut away in Spain.

Fruit infested with the Mediterranean fruit fly lies on the ground in the Ribera, about October 15, 1953.

In 1953 two plants in the Valencia area were installing low-temperature concentrators of Swiss and American manufacture. Expansion of these two plants alone probably will double Spain's capacity to produce canned pasteurized orange juice concentrate.

One plant plans to continue the manufacture of frozen orange juice concentrate and to pack it in tubes, as it did in 1953, when it sold the tubes of concentrate to the Netherlands. It also plans to pack the frozen concentrate in 2-ounce and 6-ounce cans. The concentrates at this plant are produced by a concentration-by-cold process 1/.

A new processing plant is under consideration, sponsored by the Instituto Nacional de Industria, to produce frozen green beans, peans, strawberries, orange juice, and hot-pack orange juice and tomato juice concentrates; it would be a major addition to Spain's processing industry. It is reported that for this plant nearly 50 acres of land have been purchased at Almazora near Castellon. According to present plans, the processing machinery will be obtained in the United States, the plant will be ready for the 1955-56 season, and the products will be sold in Europe, where the shortage of dollars seems to promise Spain an opportunity to supply consumers with frozen vegetable and citrus products. Even with that opportunity, however, intensive market development will be required to sell the output from such a large installation. Interest in the orange juice has already been expressed by importers in the United Kingdom, the Netherlands, Germany, and Sweden.

Plans for the new project include also the construction of a pilot plant at the citrus experiment station at Burjasot, near Valencia, where experimental work will be done on the freezing and storing of vegetable and citrus products.

Even without the new plant under consideration, processing capacity in Spain at present seems to be adequate. In the recent past the modern processing plants already in existence have not operated at capacity; one plant, for example, reported that it had never operated at more than 30 percent of capacity. For one thing, the excellent export demand has kept fruit prices so high as to discourage processors: in the 1952-53 season Spanish processors were reported to have paid about $30 per ton for oranges; and after January 15, 1953, the price increased to nearly $60. Lack of cheap tinplate, too, has been a big handicap to Spain's processing industry, and has kept it from selling canned citrus juices in Europe since the war. Tinplate for shipments to the British Ministry of Food has been furnished by the Ministry. Although tinplate prices are reported to be lower now than in the past, they are still high enough to be a deterring factor, especially with all the frozen citrus products requiring tin containers.

1/ For description of this process, see Study of the Citrus Industry of Spain, 1950, For. Agr. Rpt. No. 56. p. 92.

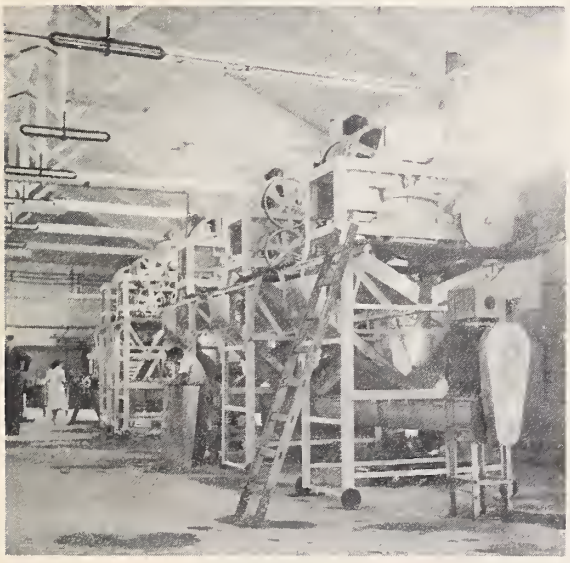
The expansion of the plants will make possible the production of larger quantities of orange juice concentrate for Europe's soft-drink industry and the British Ministry of Food. This new modern processing industry in Spain will offer more competition to United States processors who have been selling orange juice concentrate to the British Ministry of Food.

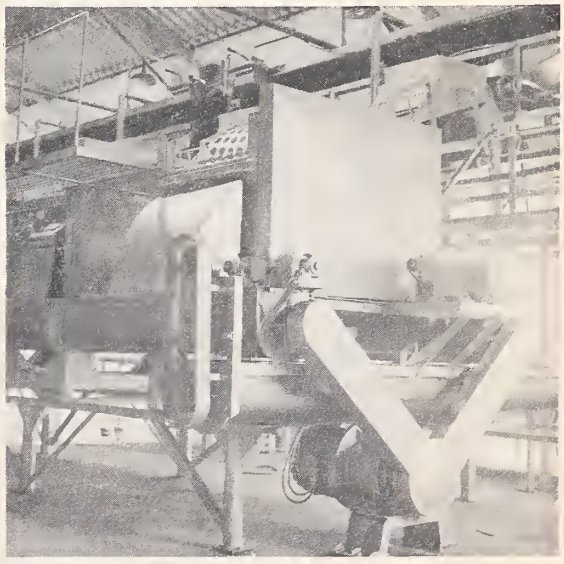
Although Spain will can the concentrate it sells to the United Kingdom for use in the child health program, it is not likely to do any other large-scale canning in the near future. Spain has never demonstrated that it can produce canned juice at a competitive price; even with the present lower price of tinplate, it probably will not be able to do so. For example, a single-strength canned orange juice that four years ago was being advertised and sold on the domestic market in Spain, was not available in 1953 because of the cost of tinplate. The only export markets available to Spanish canned juices would probably be those from which United States juices are excluded by foreign-exchange controls, such as the United Kingdom, Norway, and Denmark. Most of Spain's concentrated juices will continue to be sold to Europe's soft-drink industries, packed in casks and preserved with sulfur dioxide; in that market Spain's products will be competitive.

The Mediterranean fruit fly is present in all Spanish citrus-producing districts and has a direct effect on the quality of orange and grapefruit juice that is produced. Since the fly stings oranges and grapefruit and deposits its eggs within the fruit, any products made from these fruits will contain insect eggs and larva particles. Tests of Mediterranean orange and grapefruit juices made by the Standardization and Inspection Division, Fruit and Vegetable Branch, Production and Marketing Administration, United States Department of Agriculture, indicate that these defects are present in some juice lots. Since juices containing these defects would be denied entry into the United States by the Food and Drug Administration, all Mediterranean orange and grapefruit juices, including those produced in Spain, will have to find export outlets elsewhere.

Fruit bins at a processing plant near Valencia.

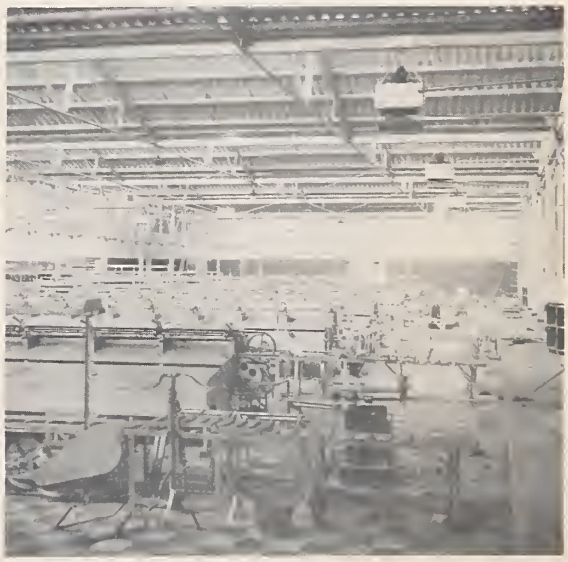
Newly installed fruit washers at a processing plant near Valencia.





Juice extractors in processing plants near Valencia. The ones on the left were manufactured in Spain; the one on the right, in the United States.

A shook mill at Castellon: Left, logs waiting to be made into shook for citrus export boxes; right, a corner of the interior. All shook for Spanish citrus export boxes is made in the citrus areas, near the packing plants.



Interiors of typical new orange-packing houses near Valencia. All machinery is manufactured in Spain.